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SECOND THOUGHTS ON TREATING SHOULDERS[1]

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"I am Getting Worse Instead of Better"

This statement unfortunately is made all too often by our patients with painful shoulders whilst they are undergoing treatment. It is my intention to examine the causes that bring this state about.

First let us exclude a whole heap of causes of shoulder pain. I do not intend to speak at all on extrinsic lesions that produce pain, we will deal only with intrinsic shoulder lesions. We will also exclude fractures and dislocations of the shoulder. The next point is that there are a lot of lesions described in the shoulder that are so rare that we need not consider them. For example:

(1) Arthritis of the shoulder is very rare—

(a) osteoarthritis seldom seen; in fact, if there is a definite diagnosis of osteoarthritis it is worth looking for a cause elsewhere as, for example, a metabolic cause;

(b) rheumatoid arthritis very rarely starts in the shoulders and so will only occur when present in many other joints;

(c) gout is excessively rare.

(2) Lesions in the deltoid are described, but except in cases of paralysis nearly all so-called deltoid lesions are really supraspinatus lesions.

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(3) Fibrositis — and before someone asks me what fibrositis is, let me get in quickly and say that I do not know — but anyway whatever people take to be fibrositis *never* occurs in the shoulder. It may occur in the trapezius, but never in the structures we are considering.

(4) Osteoarthritis of the acromioclavicular joint has often been diagnosed as a cause of painful shoulder disability but, again, it is rarely a cause of any painful shoulder disability.

(5) Neuroticism often claimed to be the reason that shoulder troubles do not clear up. It has been said that "the shoulder joint is an unusual joint and so are the people who get trouble in it" or else that a capsulitis (and may I ask your leave to define this lesion at a later stage) is a "peculiar lesion in peculiar people". This is completely false. Our patient may be a bit depressed, but so would you be if you were in pain and kept telling your doctor and physiotherapist that you were getting worse and no one took any notice of you.

So here let me summarize what we are discussing. We will discuss intrinsic lesions of the shoulder joint: that these nearly always occur in the soft tissues: that they are the results of specific injuries to tendons, capsule or bursa and as such should, theoretically, be easy to heal. That they are not easy to heal and that indeed we may even make them worse, I would attribute to three confusions: a confusion of diagnosis, a confusion about pathology and a confusion about treatment.

Let us consider a patient with shoulder pain and see what it is that may be happening to him. We will assume that he has had all other causes of shoulder pain eliminated. He is sure to have had his shoulder X-rayed, and most people looking around for some other area to X-ray will have his cervical spine X-rayed, but I put it to you that many times you will pick up more information from X-raying his chest than his neck.

We will discuss this subject under four headings.

(i) Normal anatomy, which I do not propose to describe here.
(ii) Routine examination of shoulders.
(iii) Types of shoulder lesions.
(iv) The treatment traditionally described and what is wrong with it.

ROUTINE EXAMINATION

When I describe the routine way to examine a shoulder there may be some of you who think that what I have to say is borrowed from Cyriax's method. This is not so, it is not borrowed but directly stolen from him. I must confess that I am amazed that there is not more teaching of Cyriax's method of examining joints in Australia. He is as you know the physician in charge of physical medicine at St. Thomas' Hospital in London and is surely the best friend that physiotherapy ever had. I had some difficulty in learning about his methods so I decided to enrol in a physiotherapy course that he ran.

His system of examination is based on some five points:

(1) That to diagnose a lesion of the musculo-skeletal system you must be able to reproduce that pain in the patient by your examination.
(2) To do this you move the affected part in a manner that will cause tension and so pain. For example, a muscle may give pain on active contraction or passive stretching, or a ligament may give pain when stretched.
(3) In practice, the joint is put through a range of active, passive and resisted movements and those which cause pain noted.
(4) An "arc" may be present. This means that at a certain point in the joint range a tender spot may be compressed and so will produce pain during the time that it is being compressed.
(5) Tenderness is practically valueless as a diagnostic sign.

Let us go over these points again with the shoulder. We examine the patient whilst standing behind him with shoulders bared and discover the range of shoulder movements by asking him to do so actively and then ourselves moving the joint through its full passive range. At the same time we are observing scapulo-humeral rhythm and whether or not a tender arc is felt. The tendons of the shoulder joint are examined by resisting their movement in an isometric contraction. For example, to test the supraspinatus you will abduct the shoulder against the resistance of your own hand — to test the biceps tendon you resist flexion of the elbow or supination of the forearm.

TYPES OF SHOULDER LESIONS

In considering lesions of the shoulder there are two important differentiations. There may be pain and limitation of movement in one direction, or there may be pain and limitation of movement in all directions.

Let us illustrate this by using a few examples:

If the cause of pain is a supraspinatus tendonitis, then it will be possible to reproduce this pain clinically by one of two methods, either by an isometric contraction of the muscle, that is, abducting the arm against an immovable object or by putting the muscle on the stretch when pain may be felt in the mid abduction arc, when the tendon is pinched against the under surface of the acromion. If, instead, the cause of pain is a subacronical bursitis, we find that there will be a painful arc at mid abduction but now there will be no pain on resisted movement because there is no supraspinatus tendonitis.

So in these two conditions there is pain but only in one direction. Let us consider what happens if there is pain and restriction of movements in all directions tested. Such a

pattern would indicate that we have a lesion of the capsule that surrounds the joint. The joint movements may not be restricted to the same extent in each direction moved, but the important thing is that there is a restriction to some extent in each of the directions moved.

What causes these conditions?

The supraspinatus tendon is subject to two insults, wear and tear, and overuse. The tendon is involved in most shoulder movements either as a prime mover or else acting to hold the head of the humerus whilst other muscles act. It is not a very strong tendon and is relatively avascular and moreover has to work in the confined space under the acromial arch. It is no wonder that the tendon undergoes hyaline degeneration as its owner gets older. If the shoulder is overused, as in serving at tennis, there are two further complications: minor tears occur in the tendon and the overuse itself produces an oedema and tendonitis. Later on in the course of the tendonitis, calcium is deposited in this relatively avascular, fibrotic tissue, producing a typical X-ray appearance.

Subacromial bursitis nearly always occurs secondary to lesions of the rotator cuff. This is because anatomically it is intimately connected to it and because functionally its aim is to assist these tendons to move smoothly. An extremely painful bursitis occurs when calcium crystals are deposited in the bursa from the calcification that has occurred in the supraspinatus tendon. Bursitis also can occur as a primary condition, however, though this is rare. It again is a symptom of overuse of the shoulder and let me repeat that clinical examination then reveals a painful abduction arm but no supraspinatus tendon lesion.

Let us now turn to the condition which I feel is responsible for much of the confusion that attends shoulder problems. This is capsulitis, but there are a host of synonyms for it — adhesive capsulitis, periarthritis, chronic subacromial bursitis, frozen shoulder and so on. It was first described in 1872 by Duplay who used the term periarthritis. Straight away we see that this is a bad term; Duplay thought is was caused by a lesion in structures outside the joint, for example, in the acromio-coracoid region. It was later thought to follow subacromial bursitis and so the term "Chronic Subacromial Bursitis" was used, until it was thought to follow on bicipital tendonitis. When X-rays were first used and calcium deposits found around the joint, it was assumed that these were the cause of the condition.

Neviaser described the pathology of the condition following his operative findings. He showed that the capsule of the joint was at fault being at first thickened and inflamed and in the later stages fibrosed so that the capsule surfaces became adherent and contracted resulting in a great diminution of joint volume. The capsule was also adherent to the surface of the humerus and could be peeled off in much the same way as adhesive plaster is torn off the skin. So he named this condition "adhesive capsulitis".

There is a reluctance to use the word capsulitis since this assumes a definite cause for the pathology and there is no definite cause known. Nevertheless, this is a lesion of the capsule, because on examination of the shoulder there is a restriction of movements in all directions. Now one cause for confusion is that everyone talks as though these were only one stage of this condition but if we look at the natural history of the disease and take a typical case:

The patient is usually middle aged and usually a woman. The disease process may start in either shoulder and it may come in one and after it is better, start in the other. It is a mystery as to why it should start but it is an even bigger mystery that second attacks almost never occur. Hence it can not be due to degenerative changes in the capsule or one would expect increasing incidence with age.

At first there is pain that comes on, typically, with movements of the shoulder, is felt in the area of the deltoid insertion and is dull and aching. It usually arises spontaneously but may follow trauma. There is also stiffness and the patient is unable to hang clothes on the line or unzipper the back of her frock. The condition gradually worsens till the pain is much more intense and felt over a wider area — down the arm and up into the neck. It is constantly present, though still worse on move-

ment, and is now present at night and prevents sleep, especially if the poor victim rolls onto the shoulder. A jarring of the joint produces intolerable pain. The stiffness also progresses.

After a variable time this severe pain settles but the stiffness now becomes much more marked. This is the stage of the "frozen" shoulder — pain can still be elicited by excessive stretching, but it is stiffness and not pain which is the characteristic of this stage. One point is of the utmost importance; the term frozen shoulder is a clinical description — in other words, it is not itself a disease entity or a diagnosis, but one stage of a disease process in which capsular adhesions are the most prominent feature.

Not all cases are completely typical, the condition may start or end spontaneously at any of the stages. In hemiplegics and in people who maintained their shoulder immobilized, the third stage may be the only one clinically apparent, with only minor pain preceding it.

What I consider to be the whole crux of the discussion is this: despite what all the books state, capsulitis rarely occurs secondary to the other shoulder conditions of tendonitis or bursitis; in other words these are separate and unrelated conditions. I stress this fact because many a painful shoulder lesion that should be given rest is moved around in the mistaken belief that such movement will prevent a capsulitis from developing.

TREATMENT

The treatment of this condition is terribly confused and the standard textbooks merely confound confusion. One text says, "It is difficult to be certain what treatment should be used"; another, "Physiotherapy may be tried first"; often possible treatments are listed without any definite indication given as to when to use them. You might want to know should you use heat or cold; rest or active movements; isotonic or isometric exercises; when to use manipulations, proprioceptive neuromuscular facilitation, local injections or massage; when you ease pain with analgesics, X-ray therapy or rest in bed. There are no explicit instructions on these points but statements such as "sometimes movement will help, but at a certain stage it makes the condition worse" or "heat is useful but may cause excessive stiffening" or "exercise must be instituted at once, but not if they produce pain" or "one should only allow limited use of the arm".

Why does this confusion exist?

There are two main reasons — first, there is no definite plan of management; secondly, and more importantly, there is no differentiation according to which of the three stages that the capsulitis has reached.

Let me now propose a plan of action. Our first consideration is to get rid of the painful stage without worrying about what will happen to the stiffness. The shoulder can be re-educated later and recover from the stiffness in almost every case; but this can not be done until the second stage has been passed; that is, the shoulder must be rested completely until the spontaneous pain, at night or without movement is gone. The shoulder is rested in a properly fitted triangular bandage, with the arm held next to the skin so that it need not be disturbed whilst dressing. There is no need to have the arm in abduction as was once done. If the pain is intense or if the condition is bilateral the patient may need to be in hospital. Sufficient analgesics to control pain must be given, for example, aspirin or butazolidine (although these may not be sufficient with intense pain). Night time sedation is essential.

If the pain still does not resolve, the next step should be some deep X-ray therapy which will settle the pain in about seventy per cent. of cases in which it is used.

There is no place at all for physiotherapy in this stage of the illness. Most of our techniques will only make the pain worse. Massage or short-wave diathermy, in my experience, often aggravates the pain and the use of cold applications is usually more beneficial. Local injections of hydrocortisone have also been advocated but in my experience have either done no good or else aggravated the condition. When the pain at rest has gone, mobilization of the shoulder is started, for there is no doubt that the shoulder will now be stiff and frozen.

Essentially, the aim is to stretch the shoulder capsule gradually. Heat is used, but probably only acts as a means of warming up the joint before exercising it. The mobilizing exercises used are well known, and "pendulum" exercises are best. Proprioceptive neuromuscular facilitation techniques to both shoulders are the best means of providing both stretching and exercising to the areas. The usual story now is one of steady progression over months before the shoulder is quite free. Sometimes, the treatment will reach a point at which improvement ceases.

In such cases manipulation under a general anaesthetic is indicated. The technique need not concern us here, but there is no point in putting the arm through a forced and vigorous range of movement. Traction, abduction and external rotation are all that are needed. My own procedure is to follow the manipulation with hydrocortisone injection, with a view to preventing post-operative reaction.

Constant consultation between physician and physiotherapist is important for two reasons: the patient benefits from this approach of reviewing the treatment and the results that come from it, and the physician gains increased knowledge of physiotherapy—medical students are taught very little of its uses.

To summarize, I fear that some of our techniques do make the shoulder worse. The shoulder joint has the reputation of being a difficult joint, but with proper clinical examination, proper heed of what is going on in the shoulder, and proper rest when it is indicated as is done with every other joint in the body we should be able to get very good results with these soft tissue injuries.

May I draw an analogy from the medical motto which is "P. Non Nocere", which translated means "The first thing is not to hurt the patient" but which the cynics have translated as "The first time you see them, try not to hurt them".